PROSPECT HARBOR

MAINE

SURVEY

(REVIEW OF REPORTS)

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

September 25, 1964

SURVEY (REVIEW OF REPORTS)

PROSPECT HARBOR

MAINE

SYLLABUS

The Division Engineer finds that a 600-foot breakwater to protect commercial fishing craft in Prospect Harbor is feasible and economically justified. However, local interests are unwilling and unable to meet the necessary requirements of local cooperation for a 600-foot breakwater. They now desire a 1,000-foot breakwater in deep water east of the inner harbor, but it is not economically justified. Therefore, the Division Engineer recommends no Federal improvement for navigation in Prospect Harbor at this time.

TABLE OF CONTENTS

U. S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASS. 02154

SUBJECT: Survey (Review of Reports) Prospect Harbor, Maine

TO: Chief of Engineers
ATTN: ENGCW-P
Department of the Army
Washington, D. C.

AUTHORITY

1. This report is submitted in compliance with the River and Harbor Act approved 14 July 1960 (Public Law 86-645) Section 109, which reads as follows:

> "The Secretary of the Army is hereby authorized and directed to cause surveys to be made at the following named localities and subject to all applicable provisions of Section 10 of the River and Harbor Act of 1950: Prospect Harbor, Maine . . . "

2. The study and this report was assigned by the office, Chief of Engineers, by letter dated 26 July 1960 to the Division Engineer, New England Division.

PURPOSE AND EXTENT OF STUDY

3. Local interests wanted improvement of navigation conditions at the entrance to and within Prospect Harbor for commercial fishing vessels. This study was authorized to determine the engineering feasibility and economic justification for Federal participation.

DESCRIPTION

4. Prospect Harbor is a tidal inlet roughly 1 square mile in area, on the northeast side of the Schoodic Peninsula, about 50 miles by highway southeast of Bangor and 165 miles northeast of Portland, Maine. It is wholly within the town limits of Gouldsboro, Hancock County. The inner harbor has more than 30 acres 8 feet deep. However, it is exposed to waves approaching from the south and southeast directions. At low water the inner harbor is protected by ledges which extend 500 yards eastward

from the west shore. At high water the ledges are submerged and the inner harbor is vulnerable to deep water waves.

TRIBUTARY AREA

5. The village of Prospect Harbor, South Gouldsboro, West Gouldsboro, Birch Harbor and Corea make up the Town of Gouldsboro, which in 1960 had a population of 1,100. The Town of Winter Harbor, with a population of 756 in 1960, occupies the southerly part of the Schoodic Peninsula. Prospect Harbor, West Bay, Corea Harbor, Birch Harbor, Bunkers Harbor and Wonsqueak Harbor are on the easterly side of the peninsula. All of these harbors are within the town limits of Gouldsboro.

BRIDGES

6. There are no bridges crossing any portion of the waterway under consideration in the report.

PRIOR REPORTS

7. There are no prior reports on Prospect Harbor, Maine.

EXISTING CORPS OF ENGINEERS PROJECT

8. There is no existing Federal navigation project for Prospect Harbor. A Federal project does exist for Corea Harbor which is within the town limits of Gouldsboro. That project, adopted in 1935, provides for an anchorage basin of about 6 acres, 8 feet deep, and was completed in 1938. A review study of Corea Harbor by report dated 7 April 1959 found that prospective benefits were insufficient to economically justify construction of an additional anchorage and no modification was recommended.

9. Stave Island Harbor, situated on the west side of the peninsula was studied to consider the need for dredging of a channel and anchorage in Bunker Cove. A report dated 8 November 1961, found that the considered improvements could not be economically justified.

10. A March 1959 report was made on Winter Harbor, on the southwest side of the peninsula about 5 miles southeast of Stave Island. It found that construction of a Federal channel and anchorage could not be economically justified.

LOCAL COOPERATION ON EXISTING AND PRIOR PROJECTS

11. The original harbor improvement for Corea Harbor in the Town of Gouldsboro did not contain any requirements of local cooperation.

OTHER IMPROVEMENTS

12. No known improvements for navigation have been made by local interests.

TERMINAL AND TRANSFER FACILITIES

13. There are three commercial landings in Prospect Harbor. Two are owned by the Stinson Canning Factory. The factory wharf owned by the Stinson Canning Company is used almost entirely by the canning factory. This landing is not open to the public. Berthing depth is reported to be 10 feet at low water. Unloading facilities include a fish pump and derrick. Fresh water is available.

14. The old clam factory wharf owned by the Stinson Canning Company, is used by the lobster fishermen and the general public. Low water depth varies from 6 to 8 feet alongside. Fuel oil is available but fresh water is not. There is no wharf fee charged.

15. The third wharf is used as a base for a lobster buying business. The berthing depth is 3 feet.

16. There is no public wharf or landing in the harbor. The Selectmen from Gouldsboro stated that the Town had set aside a sum of money to construct a public wharf if the desired improvements were provided.

IMPROVEMENTS DESIRED

17. A public hearing was held at the Prospect Harbor Community House, Prospect Harbor, Maine on 22 August 1962 to determine the nature and extent of the improvement desired by local interests. Attendance included representatives from State and Municipal Governments, local citizens, fish dealers and fishermen.

18. Local interests suggested construction of a breakwater 800 feet long or at least 600 feet long along a natural line of tidal ledges at the entrance to the inner harbor of Prospect Harbor. This breakwater would not be shore tied and would extend in a northeast direction from

Clark Ledges on the west side of the harbor. They proposed that it have a top elevation of 18 feet above mean low water, a crest width of 20 feet and side slopes of 1 on 2.

19. The Maine Department of Sea and Shore Fisheries, in conjunction with the Maine Port Authority, submitted a statement requesting favorable consideration of a Federal improvement in Prospect Harbor. The statement indicated that due to lack of adequate protection, the harbor was not realizing its potential use. It was reported that a buyer was interested in establishing a groundfish business, if protection were provided. This could be important to the economy of the area.

20. The greatest concern appeared to be the damage that had been sustained in the past by the present fleet and by the factory wharves and buildings. It was stated at the hearing that during the previous 17 years, $185,000 in damage to the building, equipment, sardines and fibre packing boxes were caused due to lack of protection during storms. It was suggested that much of this damage would have been prevented by a breakwater.

21. Local interests reported that the proposed breakwater, while primarily benefiting the commercial fishing industry, would also help the area to develop its recreational boating potential. Although there are no locally based recreational craft, about four or five cruisers a month visit the harbor during the summer season. Local interests stated that a steadily growing summer population indicated that if a safe anchorage and adequate facilities were provided, there would be a substantial fleet of pleasure boats located there.

22. Local interests stressed the fact that the sardine production and the lobster catch were the economic heart of this region. Vessels based at Prospect Harbor at the time of the hearing included 16 lobster boats valued at $45,000; 2 herring carriers valued at over $50,000 and 2 seiners valued at about $10,000. Six additional herring carriers used the harbor from time to time. They anticipated that with adequate protection, six new lobster boats would be attracted to the harbor.

EXISTING AND PROSPECTIVE COMMERCE

23. The sole item of commerce in Prospect Harbor consists of fish, both herring and shellfish. Local fishermen reported that in the ten year period prior to the hearing, lobster landings had reached as high as 110,000 pounds in a year. The average however, was

reported to be nearer 90,000 pounds.

24. Herring production at Prospect Harbor has varied over the years. The Stinson Canning Company handles Atlantic herring brought to the plant by seiners and carriers operating along the coast. During the period 1957-1961, a total of 22,970,000 pounds of herring were processed at this plant. Annual totals varied from a low of 1,750,000 pounds in 1961 to a high of 6,090,000 pounds in 1957. There is no singificant groundfish production at Prospect Harbor at the present time.

25. The local committee estimated that lobster landings at Prospect Harbor would increase annually be some 30,000 pounds as a result of a protected anchorage and increased size of the fleet. There is no way to determine whether or not herring production would be increased, but it appears that the construction of a breakwater would have no significant effect on the landings of this species.

26. As far as groundfish are concerned, it has been reported that a buyer is interested in establishing a business at Prospect Harbor. Apparently he had previously been located at Corea, but because draggers were unable to use that small and extremely congested harbor, he was forced to curtail his business there. Should a market for groundfish be created, this would mean the addition of several small draggers to the local fleet. More important, it would mean that the production of groundfish, which is presently negligible, would be increased to significant proportions.

VESSEL TRAFFIC

27. Prospect Harbor is used principally by boats engaged in fishing and no specific details relative to vessel trips are available. The 16 lobster boats have drafts ranging around three or four feet. The two herring carriers and two seiners, have drafts of 6 to 8 feet.

DIFFICULTIES ATTENDING NAVIGATION

28. The harbor has sufficient areas and sufficient depth but is exposed to waves from southerly directions. During the 10-year period prior to the hearing, nine lobster boats were lost in the harbor and others had been damaged by heavy seas. Boat replacement or repairs have caused lost fishing time and resulted in decreased revenues for the lobstermen.

WATERPOWER AND OTHER SPECIAL SUBJECTS

29. The waterway under consideration is tidal. There are no problems involved in this investigation pertaining to water power, flood control, pollution or related subjects. The desired improvement should have no adverse effect on wildlife or shellfish.

PLAN OF IMPROVEMENT

30. The improvements considered in this report are those that were requested by local interests. At the entrance to the inner harbor of Prospect Harbor there is a natural line of tidal ledges. A breakwater on top of this natural barrier would protect most of the anchorage area inside the inner harbor from ocean waves at all stages of the tide.

31. Consideration was given to two lengths proposed by local interests; a 600-foot breakwater would extend to the edge of the ledge outcrops while one, 800 feet in length would extend to a beacon.

32. Wave studies to evaluate probable wave heights, and studies of the reductions of wave heights by wave diffraction showed that a breakwater on Clark Ledge would be effective in protecting the west side of the inner harbor from waves originating from the southeast quadrant. A difference in breakwater length results only in a difference in the amount of protected anchorage area. A 600-foot breakwater was found to provide adequate protection for the existing fleet and for the reasonable expansion of the fleet during the life of the project. A breakwater of greater length would not attract more boats or provide any greater protection to those now using the harbor.

33. Consideration of the water depths seaward of the breakwater and wave approach results in selection of a design wave of 8 feet. For that wave the breakwater should have a top elevation of 18 feet above mean low water, side slopes of 1 vertical to 2 horizontal on the exposed side and 1 vertical to 1-1/2 horizontal on the protected side, a top width of 6 feet and 2 ton armor stone 2 layers thick.

34. In May 1964 local interests requested consideration of a 1,000 foot breakwater to shelter the inner harbor from the east. It was estimated that this breakwater would cost in excess of $2,000,000. A breakwater of this length at this location would protect a greater area of the harbor from the east. However, the Clark Ledge breakwater would also be needed to provide shelter from southeast waves

and the limited number of boats that use the harbor does not require the additional protection that would be provided by the two structures.

SHORELINE CHANGES

35. The shoreline of the harbor is generally rocky, consisting of large areas of ledge outcrop. Because there is no movement of littoral materials, the construction of a breakwater would have no effect on the configuration of the adjacent shoreline.

REQUIRED AIDS TO NAVIGATION

36. The United States Coast Guard has been consulted with respect to the need for additional aids to navigation for a breakwater on Clark Ledge. They report that no additional navigational aids would be required.

ESTIMATES OF FIRST COST

37. The first cost has been estimated for a 600-foot breakwater. It would be a rubble mound structure constructed of local stone from the shore out on a temporary section by land equipment. Costs are based on price levels prevailing in June 1964.

Project Construction Cost

18,000 tons stone @ $7.00	$126,000
Contingencies	19,000
Engineering and Design	7,000
Supervision and Administration	8,000
Project Cost	$160,000

ESTIMATES OF BENEFITS

38. There is no recreational fleet based in Prospect Harbor. Benefits from navigational improvements would accrue to the fishing industry and would be general in nature.

39. At present there are 16 lobster boats, 2 herring carriers and 2 seiners based in Prospect Harbor. Six additional herring carriers use the harbor from time to time. During the ten years prior to the public hearing, nine lobster boats were lost or severly damaged in the harbor. A breakwater would reduce this damage. The 16 lobster boats are worth $45,000, an average value of $2,800 each. It is estimated that a breakwater would prevent the loss of six boats in each 10 year period during the life of the project. This would amount to an annual saving of

$1,700. It is also estimated that minor damage to boats and damage to equipment and lobster cars amounts to over $1,600 and that a breakwater would eliminate damages of $1,000 a year. It is therefore considered that the annual benefits for the elimination of damage by the provision of adequate protection is $2,700.

40. With the construction of a breakwater, local interests anticipate an almost immediate addition by six new lobster boats to the local fleet. These boats will increase the lobster catch by 30,000 pounds a year. At $0.50 per pound and a net value of 40 percent of the gross value, the benefits from an increased lobster catch would be $6,000. The total estimated annual benefits is therefore $2,700 for the reduction of boat damage and $6,000 for the increased lobster catch or $8,700.

41. In addition to the tangible benefits described above, certain intangible benefits would accrue from the provision of safe and adequate mooring facilities. There would be an increase in navigation traffic, resulting in additional local revenue. This, although real and of significance to the area, is considered to be a secondary benefit and has not been evaluated.

APPORTIONMENT OF COSTS AMONG INTERESTS

42. Because all the benefits are general in nature the total first cost of construction and future maintenance is apportioned to the United States and local interests would be expected to provide the public landing.

ESTIMATE OF ANNUAL CHARGES

43. The estimated annual carrying charges for the improvements considered in the report have been computed for a life of 50 years at an interest rate of 3.125 percent. The estimate for annual maintenance is based on repair work averaging 100 tons per year at $10 a ton.

Breakwater Annual Charges:

Interest and Amortization	$6,400
Maintenance	1,000
Total	$7,400

COMPARISON OF BENEFITS TO COSTS

44. The evaluated annual benefits of $8,700 and the estimated annual charges of $7,400 indicate a benefit cost ratio of 1.2.

PROPOSED LOCAL COOPERATION

45. Benefits from improvement of Prospect Harbor would be increased fish catch and reduced fishing fleet damages, which are general in nature. Therefore, the whole cost of project construction and maintenance should be borne by the Federal Government. Local interests should be required to hold and save the United States free from damages due to construction and maintenance of the improvement, and to provide without cost to the United States, all lands, easements, and rights-of-way necessary for construction of the project and for subsequent maintenance. Local interests should also be required to provide adequate public landing facilities open to all on equal terms to assure full public use of the improvement.

COORDINATION WITH OTHER AGENCIES

46. All Federal, State and local agencies having interest in the improvement of Prospect Harbor were notified of the public hearing held at Prospect Harbor, Maine on 22 August 1962. Representatives of the State, Town of Gouldsboro and other local interests have been consulted during the study. Comments made by the U. S. Fish and Wildlife Service are contained in Appendix A of this report. Officials of the Town of Gouldsboro, by letter dated 21 May 1964, stated that the original request made at the public hearing, would not meet the needs of local interests. Because local interests are convinced that a much more extensive undertaking would be necessary to provide the protection they desired, they are not willing to meet the requirements of local cooperation for a 600-foot breakwater. Comments from Town and State officials are contained in Appendix B of this report.

DISCUSSION

47. Prospect Harbor is in the village of Prospect Harbor, a section of the Town of Gouldsboro. The harbor has both sufficient area and sufficient depth for a large fleet of vessels, but is exposed to waves approaching from the south and southeast during the higher stages of the tide. Between 1951 and 1962 nine lobster boats were lost or severly damaged in the harbor.

48. The breakwater requested at the public hearing would protect the existing and anticipated future fishing fleet from damaging waves, and is economically justified. However, local interests now feel that a much larger breakwater is needed to provide the necessary protection. This

has been considered, but the limited number of boats that can reasonably be expected to use the harbor can be protected by a smaller breakwater so greater dimensions are not justified.

CONCLUSION

49. The Division Engineer concludes that although a rubble mound breakwater at Prospect Harbor is economically justified on the basis of general navigation benefits, the Town of Gouldsboro is unable and unwilling to meet the requirements of local cooperation.

RECOMMENDATION

50. In view of the foregoing, the Division Engineer recommends no Federal navigation project in Prospect Harbor, Maine at this time.

Incl
Map File No. 1647 D-5-2
Info re Sen Res 148
Appendix A - Fish & Wildlife Service Report
Appendix B - Comments of Local Interests

P. C. HYZER
Brigadier General, USA
Division Engineer

CORPS OF ENGINEERS

U. S. ARMY

PROSPECT HARBOR POINT

PROSPECT HBR. LT.

INNER HARBOR

M.L.W.

12' DEPTH CONTOUR

CLARK POINT

600

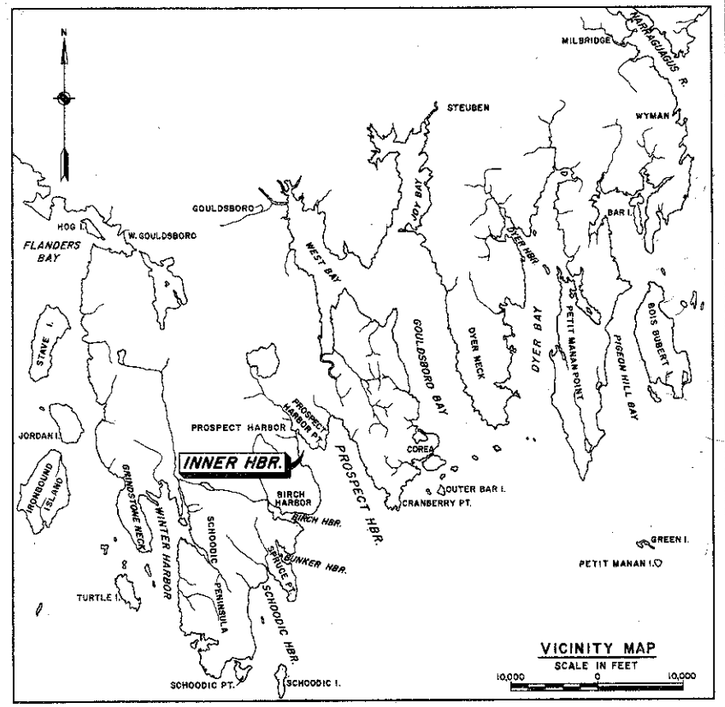
DAY BEACON

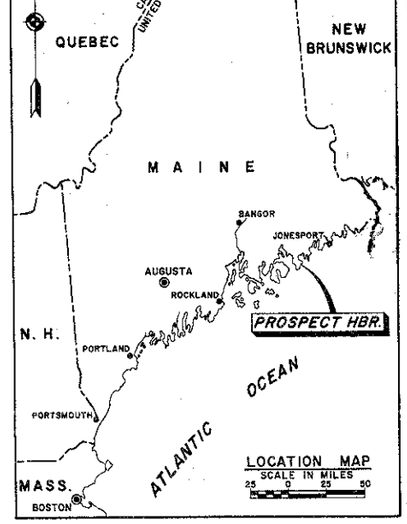
PROSPECT HARBOR

IMPROVEMENTS CONSIDERED
NOT RECOMMENDED

BREAKWATERS
1000 FT. LONG
600-800 FT. LONG

NOTE:
Soundings are in feet and tenths and are referred to the plane of Mean Low Water.





U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS, WALTHAM, MASS.

PROSPECT HARBOR
MAINE

SHEET 1 OF 1 — SCALE IN FEET 200 0 200 400 — SEPT. 1964

APPROVED:
CHIEF, ENGINEERING DIVISION

SUBMITTED:
CHIEF, PLANNING AND REPORTS BRANCH

CHIEF, RIVER AND HARBOR SECTION

PROJECT ENGINEER

DR. BY C.T.M.
TR. BY C.T.M.
CH. BY

TO ACCOMPANY SURVEY REPORT
DATED SEPT. 25, 1964

FILE NO. 1647 0-5-2

SURVEY (REVIEW OF REPORTS)
PROSPECT HARBOR, MAINE

Information called for by Senate Resolution 148, 85th Congress,
Adopted 28 January 1958

1. Navigation Problems. - Prospect Harbor is a tidal inlet, located on the Schoodic Peninsula about 50 miles southeast of Bangor. The harbor has both sufficient area and sufficient depth for a large fleet of vessels, but is exposed to storm waves from the southeast. It is used chiefly by fishing craft with an occasional visit by a recreational boat.

2. Improvement Considered. - Local interests requested a breakwater 600 feet long, extending in a northeast direction over Clark Ledges on the west side of the harbor. Studies showed that breakwater to provide adequate shelter and to be economically justified. The first cost has been estimated to be $160,000 (excluding preauthorization study costs of $12,000). The annual estimated benefit of $8,700 and the annual estimated charges of $7,400 result in a benefit-cost ratio of 1.2 to 1.

3. Local interests were notified of the results of the study by letter dated 14 May 1964. On 21 May 1964 officials of the Town of Gouldsboro stated that a 600-foot breakwater would not meet their needs. They stated that to be of benefit the breakwater would have to be 1,000 feet located in deep water in the center of the inner harbor. The limited number of boats that can reasonably be expected to use the harbor can be protected by a smaller breakwater so greater dimensions are not justified.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
59 TEMPLE PLACE
BOSTON, MASSACHUSETTS 02111

April 1, 1964

Division Engineer
New England Division
U. S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts

Dear Sir:

This is our conservation and development report on your navigation improvement study of Prospect Harbor, Gouldsboro, Maine. The project study is authorized under Section 109, PL 86-645. Our report was prepared under authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-666 inc.), in cooperation with the Maine Department of Sea and Shore Fisheries and has the concurrence of that agency as indicated in its letter of March 27, 1964.

We understand that the plan of improvement would be to construct a breakwater 600-800 feet long, along a natural line of tidal ledges from Clark Point to a beacon easterly of the Point. The breakwater would not be tied to shore. Dredging is not being considered as part of project activities.

There are no significant fish and wildlife resources in the immediate project area which would be directly affected by breakwater construction. About 90,000 pounds of lobsters are landed annually at Prospect Harbor. Atlantic herring landed and processed at the harbor since 1957 runs between 4 million and 6 million pounds except for 1961 when the landings were about 1,750,000 pounds. Atlantic herring are netted in the harbor when weather conditions permit but this production is not a significant part of the total landings.

The breakwater would result in considerable benefits to the commercial fishermen. A protected anchorage would result in reduced damages to the present fleet of 16 lobster boats, 2 herring carriers, 2 seiners, and 6 transient herring carriers. It would permit anchoring of new or transfer vessels. Vessel repairs and maintenance work would be facilitated by provision of a breakwater. Carrier vessels of the local herring canning company would be stored overwinter in the harbor; presently they are winter-stored in other ports. There would be a reduction in damages to wharves and buildings of the herring cannery. An improved anchorage would provide an inducement for expansion of public landing facilities.

Breakwater protection would allow live storage of lobsters in the harbor. Lobstermen could obtain higher prices for their catch. Six new boats would be expected to increase the lobster landings by about 30,000 pounds annually valued at $15,000.

The breakwater, not tied to shore, would provide only incidental benefits for the sport fishery. Submerged rocks and interstices would serve as an attractant for fish feeding on the attached marine organisms. Because land-based fishermen could not reach the breakwater the benefits therefrom would be insignificant. It would be impractical to construct a walkway from shore to the breakwater for fisherman use.

Project works would have no effect on waterfowl resources.

Sincerely yours,

John S. Gottschalk
Regional Director
Bureau of Sport Fisheries and Wildlife

Russell T. Norris
Acting Regional Director
Bureau of Commercial Fisheries

Town of Gouldsboro
Maine

West Gouldsboro, Maine
May 21, 1964

Division Engineer
U. S. Army Engineer Division, New England
Corps of Engineers
424 Trapelo Road
Waltham 54, Mass.

Dear Sir:

Thank you for your letter of May 14 in regard to the navigation study of Prospect Harbor.

I have discussed the proposed project with the local interests, and we feel that the project under consideration would not meet the needs of local interests. We feel that in order to be of benefit, the project would require a sum considerably larger than $200,000.

We feel that the breakwater should run from a point near the beacon across in the direction of the Sand Cove or Prospect Harbor Light. I have drawn a line on the chart to indicate approximately what is needed.

The requirements for local co-operation for a Federal project, indicated in your letter under B, C, and D, could be met.

Town of Gouldsboro
Maine

Under A, we feel that the cost of this project, if it were to be of adequate benefit, would be so great that we would not be able to make a cash contribution for all the cost over #200,000.

If any more information is needed, I will be glad to do my best to take care of it.

Very truly yours,

Byron P Young

Chairman, Board of Selectmen

RONALD W. GREEN, COMMISSIONER

STATE OF MAINE

DEPARTMENT OF SEA AND SHORE FISHERIES
STATE HOUSE
AUGUSTA

July 15, 1964

Division Engineer
U.S. Army Engineer Division, New England
Corps of Engineers
424 Trapelo Road
Waltham 54, Massachusetts

Dear Sir:

This is in reference to the proposed navigation project at Prospect Harbor, Maine.

Following a meeting on July 9 with local representatives, Mr. Mauriello of the Corps of Engineers, Edward Langlois of the Maine Port Authority and George Taylor of this Department, it was our understanding that the breakwater as proposed would not be satisfactory to local interests. Apparently they feel that a far more extensive and costly project would be required to give Prospect Harbor the protection they believe it needs.

In view of the considerable time and effort expended on this project at Federal, State and local levels, this development is regretted. Certainly we hope that at some future date a satisfactory solution to the navigation problems at Prospect Harbor can be found.

Sincerely yours,

RONALD W. GREEN
Commissioner